

=> fil wpix

FILE 'WPIX' ENTERED AT 10:20:09 ON 27 APR 2007
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FILE LAST UPDATED: 26 APR 2007 <20070426/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE: 200727 <200727/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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http://www.stn-international.de/archive/stn_online_news/fraghitstr_ex.pdf

>>> IPC Reform backfile reclassification has been loaded to 31 December 2006. No update date (UP) has been created for the reclassified documents, but they can be identified by 20060101/UPIC and 20061231/UPIC. <<<

FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
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<http://scientific.thomson.com/support/patents/coverage/latestupdates/>

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http://www.stn-international.de/stndatabases/details/ipc_reform.html and
<http://scientific.thomson.com/media/scpdf/ipcrdwpi.pdf>

>>> FOR DETAILS ON THE NEW AND ENHANCED DERWENT WORLD PATENTS INDEX
PLEASE SEE

http://www.stn-international.de/stndatabases/details/dwpi_r.html <<<

=> d his nofile

(FILE 'HOME' ENTERED AT 09:46:01 ON 27 APR 2007)

FILE 'HCAPLUS' ENTERED AT 09:46:27 ON 27 APR 2007

| | | | |
|-----|-----------------|--------|---|
| L1 | QUE ABB=ON | PLU=ON | BATTERY OR (ELECTROCHEM? OR ELECTROLY ? OR GALVAN? OR WET OR DRY OR PRIMARY OR SECONDARY) (2A)CE LL |
| L2 | QUE ABB=ON | PLU=ON | ELECTRODE |
| L3 | QUE ABB=ON | PLU=ON | LAMIN? OR LAMEL? OR MULTILAYER? OR MULTI (W) LAYER? |
| L4 | QUE ABB=ON | PLU=ON | SEAL OR SEALS OR SEALED OR SEALING |
| L5 | QUE ABB=ON | PLU=ON | IMPERV? OR IMPERMEA? |
| L6 | QUE ABB=ON | PLU=ON | FUSE# OR FUSING# OR FUSION? |
| L7 | 8599 SEA ABB=ON | PLU=ON | L2 (3A) L3 |
| L8 | 4974 SEA ABB=ON | PLU=ON | L2 (3A) (L4 OR L5 OR L6) |
| L9 | 2447 SEA ABB=ON | PLU=ON | (L7 OR L8) AND L1 |
| L10 | 2687 SEA ABB=ON | PLU=ON | L4 (3A) MEMBER? |
| L11 | 55 SEA ABB=ON | PLU=ON | L9 AND L10 |
| L12 | QUE ABB=ON | PLU=ON | (NONAQ# OR NONAQUEOUS OR NON (W) AQ# OR NON (W) AQUEOUS) (2A) ELECTROLY? |

L13 4 SEA ABB=ON PLU=ON L11 AND L12
D SCA

FILE 'WPIX' ENTERED AT 10:12:42 ON 27 APR 2007

L14 10721 SEA ABB=ON PLU=ON L2(3A)L3
L15 8909 SEA ABB=ON PLU=ON L2(3A)(L4 OR L5 OR L6)
L16 2816 SEA ABB=ON PLU=ON (L14 OR L15) AND L1
L17 21882 SEA ABB=ON PLU=ON L4(3A)MEMBER?
L18 46 SEA ABB=ON PLU=ON L16 AND L17
L19 2 SEA ABB=ON PLU=ON L18 AND L12

FILE 'COMPENDEX' ENTERED AT 10:14:21 ON 27 APR 2007

L20 513 SEA ABB=ON PLU=ON L2(3A)L3
L21 294 SEA ABB=ON PLU=ON L2(3A)(L4 OR L5 OR L6)
L22 109 SEA ABB=ON PLU=ON (L20 OR L21) AND L1
L23 0 SEA ABB=ON PLU=ON L22 AND L10
L24 0 SEA ABB=ON PLU=ON L22 AND L12

FILE 'JAPIO' ENTERED AT 10:15:34 ON 27 APR 2007

L25 9729 SEA ABB=ON PLU=ON L2(3A)L3
L26 5257 SEA ABB=ON PLU=ON L2(3A)(L4 OR L5 OR L6)
L27 2192 SEA ABB=ON PLU=ON (L25 OR L26) AND L1
L28 68 SEA ABB=ON PLU=ON L27 AND L10
L29 5 SEA ABB=ON PLU=ON L28 AND L12

FILE 'INSPEC' ENTERED AT 10:16:38 ON 27 APR 2007

L30 11652 SEA ABB=ON PLU=ON L2(3A)L2
L31 657 SEA ABB=ON PLU=ON L2(3A)(L4 OR L5 OR L6)
L32 1471 SEA ABB=ON PLU=ON (L30 OR L31) AND L1
L33 1 SEA ABB=ON PLU=ON L32 AND L10
D SCA

FILE 'PASCAL' ENTERED AT 10:17:33 ON 27 APR 2007

L34 319 SEA ABB=ON PLU=ON L2(3A)L3
L35 290 SEA ABB=ON PLU=ON L2(3A)(L4 OR L5 OR L6)
L36 50 SEA ABB=ON PLU=ON (L34 OR L35) AND L1
L37 0 SEA ABB=ON PLU=ON L36 AND L10
L38 0 SEA ABB=ON PLU=ON L36 AND L12

FILE 'WPIX' ENTERED AT 10:18:36 ON 27 APR 2007

SEL L19 PN,APPS

FILE 'HCAPLUS' ENTERED AT 10:18:52 ON 27 APR 2007

L39 2 SEA ABB=ON PLU=ON (JP1997-29235/APPS OR US2001-814632/A
PPS OR CN2001-119022/APPS OR JP2000-81578/APPS OR
"CN1189970 C"/PN OR CN1316788/PN OR EP1137093/PN OR
EP2001-400770/APPS OR JP10228924/PN OR JP2001266952/PN
OR "JP3302592 B"/PN OR MX2001-2970/APPS OR MX2001002970/P
N OR US20020012834/PN OR US2003-690069/APPS OR US20040081
887/PN OR US6689177/PN)
L40 3 SEA ABB=ON PLU=ON L13 NOT L39

FILE 'HCAPLUS, JAPIO, INSPEC' ENTERED AT 10:19:17 ON 27 APR 2007

L41 9 DUP REM L40 L29 L33 (0 DUPLICATES REMOVED)

=> d l19 ifull 1-2

DOC. NO. CPI: C2001-173277 [66]
 DOC. NO. NON-CPI: N2001-435517 [66]
 TITLE: **Non-aqueous electrolyte**
 secondary **battery** for use in cellular
 phones, comprises seal made of thermoplastic
 material which is fused and inserted into a gap
 between package end and lead electrode
 DERWENT CLASS: L03; X16
 INVENTOR: ONO T; ONOZAKI T; SUGIYAMA T; TAKASHI O; TATSUO O;
 TSUYOSHI S; ONU T; SUGIYAMA Y
 PATENT ASSIGNEE: (ONOT-I) ONO T; (ONoz-I) ONOZAKI T; (SONY-C) SONY
 CORP; (SUGI-I) SUGIYAMA T
 COUNTRY COUNT: 30

PATENT INFORMATION:

| PATENT NO | KIND | DATE | WEEK | LA | PG | MAIN IPC |
|----------------|------|----------|-----------|----|-------|----------|
| EP 1137093 | A2 | 20010926 | (200166)* | EN | 12[4] | |
| JP 2001266952 | A | 20010928 | (200172) | JA | 8 | |
| CN 1316788 | A | 20011010 | (200207) | ZH | | |
| US 20020012834 | A1 | 20020131 | (200210) | EN | | |
| US 6689177 | B2 | 20040210 | (200413) | EN | | |
| US 20040081887 | A1 | 20040429 | (200429) | EN | | |
| MX 2001002970 | A1 | 20040701 | (200545) | ES | | |
| CN 1189970 | C | 20050216 | (200622) | ZH | | |

APPLICATION DETAILS:

| PATENT NO | KIND | APPLICATION | DATE |
|----------------|-----------|----------------|----------|
| EP 1137093 | A2 | EP 2001-400770 | 20010323 |
| JP 2001266952 | A | JP 2000-81578 | 20000323 |
| MX 2001002970 | A1 | MX 2001-2970 | 20010322 |
| US 20020012834 | A1 | US 2001-814632 | 20010322 |
| US 6689177 | B2 | US 2001-814632 | 20010322 |
| US 20040081887 | A1 Div Ex | US 2001-814632 | 20010322 |
| CN 1316788 | A | CN 2001-119022 | 20010323 |
| US 20040081887 | A1 | US 2003-690069 | 20031021 |
| CN 1189970 | C | CN 2001-119022 | 20010323 |

FILING DETAILS:

| PATENT NO | KIND | PATENT NO |
|----------------|-----------|--------------|
| US 20040081887 | A1 Div ex | US 6689177 B |

PRIORITY APPLN. INFO: JP 2000-81578 20000323

INT. PATENT CLASSIF.:

IPC RECLASSIF.: H01M0010-36 [I,C]; H01M0010-40 [I,A]; H01M0002-02
 [I,A]; H01M0002-02 [I,C]; H01M0002-06 [I,A];
 H01M0002-06 [I,C]; H01M0002-08 [I,A]; H01M0002-08
 [I,C]; H01M0002-30 [I,A]; H01M0002-30 [I,C];
 H01M0006-18 [N,A]; H01M0006-18 [N,C]

BASIC ABSTRACT:

EP 1137093 A2 UPAB: 20060117

NOVELTY - A **non-aqueous**

electrolyte secondary **battery** comprises a laminating structure, and a package that
 covers the laminating structure. A lead **electrode** is joined to the laminating
 structure and protrudes from an end of the package. A seal is inserted into a gap

between the end of the package and the lead **electrode**. It **seals** the gap by fusing a thermoplastic material.

DETAILED DESCRIPTION - A **non-aqueous electrolyte secondary battery** includes a laminating structure, in which a positive or a negative **electrode** is laminated. A film-like or sheet-like package (3a, 3b) covers the laminating structure. A lead **electrode** (1a, 1b) is joined to the laminating structure and protrudes from an end of the package **member**. A **seal** (2a, 2b) is inserted into a gap between the end of the package and the lead **electrode**. It **seals** the gap by fusing a thermoplastic material. An INDEPENDENT CLAIM is also included for a method of manufacturing the **non-aqueous**

electrolyte secondary battery, comprising heating the seal to above fusion temperature using a heater (6a, 6b), inserting a stripping sheet (4a, 4b) made of Teflon between a heater (6a, 6b) and the package or the seal, separating the stripping sheet from the package or the seal, and re-solidifying the fused seal.

USE - The **non-aqueous**

electrolyte secondary battery is used in portable small electronic equipment, e.g. cellular phones and computers.

ADVANTAGE - The **non aqueous electrolyte battery** has high productivity, increased durability and excellent hermeticity. It employs a seal made of thermoplastic material, which prevents sealing failures caused by gaps occurring between sides of the lead electrode and the package member.

DESCRIPTION OF DRAWINGS - The figure shows a schematic view of the lithium ion polymer secondary **battery**. Lead electrode (1a, 1b)

Seal (2a, 2b)

Package (3a, 3b)

Stripping sheet (4a, 4b)

Heater (6a, 6b)

TECHNOLOGY FOCUS:

ELECTRICAL POWER AND ENERGY - Preferred Components: The **non-aqueous electrolyte secondary battery** employs a solid electrolyte or preferably a gel-type electrolyte.

INORGANIC CHEMISTRY - Preferred Materials: The positive electrode comprises lithium mix whose main base is of formula (I):

M = cobalt, nickel, or manganese.

The negative electrode comprises a non-graphitizing carbon material or a graphite material. The gel-type electrolyte is made of a fluorine macromolecule containing an electrolyte salt and a solvent. The package is made of a metal laminate pack material comprising a package resin, a metal film, and a sealant layer.

FILE SEGMENT: CPI; EPI

MANUAL CODE: CPI: L03-E03

EPI: X16-B01F1; X16-E01C; X16-F01A

L19 ANSWER 2 OF 2 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

ACCESSION NUMBER: 1998-517020 [44] WPIX

DOC. NO. CPI: C1998-155344 [44]

DOC. NO. NON-CPI: N1998-404356 [44]

TITLE: Manufacturing method for **non-aqueous electrolyte secondary battery** - comprises mounting and arranging positive and negative electrodes, and separator in a envelop, pouring electrolyte, sealing the envelop can and initial charging the secondary **battery**

DERWENT CLASS: L03; X16

INVENTOR: NAKAJIMA M; NOSE H; OHASHI H; UENO Y

PATENT ASSIGNEE: (RAYN-C) TOSHIBA BATTERY CO LTD

COUNTRY COUNT: 1

PATENT INFORMATION:

| PATENT NO | KIND | DATE | WEEK | LA | PG | MAIN IPC |
|-------------|------|----------|-----------|----|------|----------|
| JP 10228924 | A | 19980825 | (199844)* | JA | 7[4] | |
| JP 3302592 | B2 | 20020715 | (200253) | JA | 6 | |

APPLICATION DETAILS:

| PATENT NO | KIND | APPLICATION | DATE |
|-------------|------|---------------|----------|
| JP 10228924 | A | JP 1997-29235 | 19970213 |
| JP 3302592 | B2 | JP 1997-29235 | 19970213 |

FILING DETAILS:

| PATENT NO | KIND | PATENT NO |
|------------|------|-----------------------------|
| JP 3302592 | B2 | Previous Publ JP 10228924 A |

PRIORITY APPLN. INFO: JP 1997-29235 19970213

INT. PATENT CLASSIF.:

IPC RECLASSIF.: C01B0031-00 [I,C]; C01B0031-02 [I,A]; H01M0010-36 [I,C]; H01M0010-38 [I,A]; H01M0010-40 [I,A]; H01M0004-02 [I,A]; H01M0004-02 [I,C]; H01M0004-58 [I,A]; H01M0004-58 [I,C]

BASIC ABSTRACT:

JP 10228924 A · UPAB: 20050523 The **non-aqueous electrolyte secondary battery** is manufactured by; (i) mounting and arranging a positive electrode, a separator, and a negative electrode in an envelop can; (ii) pouring electrolyte into the envelop can; (iii) sealing the envelop can to form the secondary **battery**; and (iv) initial charging the secondary **battery**.
 USE - The method is used for manufacturing of **non- aqueous electrolyte secondary battery**.
 ADVANTAGE - The **non-aqueous electrolyte secondary battery** has good initial charge and discharge efficiency and good cycle characteristics.

DOCUMENTATION ABSTRACT:

JP10228924

The **non-aqueous electrolyte secondary battery** is manufactured by:
 (i) mounting and arranging a positive electrode, a separator, and a negative electrode in an envelop can;
 (ii) pouring electrolyte into the envelop can;
 (iii) sealing the envelop can to form the secondary **battery**; and
 (iv) initial charging the secondary **battery**.
 USE

The method is used for manufacturing of **non-aqueous electrolyte secondary battery**.

ADVANTAGE

The **non-aqueous electrolyte secondary battery** has good initial charge and discharge efficiency and good cycle characteristics.

EMBODIMENT

Fig. 2 is the example of the **non-aqueous electrolyte secondary battery** of this invention.
 In the Fig. 2, (1) is the envelop can, (2) is the **battery**

element, (3) is the positive electrode, (3a) is the Al collector, (3b) is the positive electrode active material like LiCoO₂, (4) is the separator, (5) is the negative electrode, (5a) is the Cu collector, (5b) is the negative electrode active material like carbon material, (8) is the pressure releasing hole, (9) is the **sealing member**, (10) is the positive electrode terminal pin, (11) is the glass insulator, (12) is the positive electrode lead, (13) is the safety plate, (14) cut groove. (SN)

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: L03-E01C
EPI: X16-B01F; X16-E01A; X16-E01C; X16-E01G

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 10:20:26 ON 27 APR 2007
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FILE COVERS 1907 - 27 Apr 2007 VOL 146 ISS 19
FILE LAST UPDATED: 26 Apr 2007 (20070426/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> fil jpio

FILE 'JAPIO' ENTERED AT 10:20:31 ON 27 APR 2007
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FILE LAST UPDATED: 27 APR 2007 <20070427/UP>
FILE COVERS APRIL 1973 TO JANUARY 25, 2007

>>> GRAPHIC IMAGES AVAILABLE <<<

=> fil inspec

FILE 'INSPEC' ENTERED AT 10:20:35 ON 27 APR 2007
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FILE LAST UPDATED: 23 APR 2007 <20070423/UP>
FILE COVERS 1898 TO DATE.

<<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN
THE ABSTRACT (/AB), BASIC INDEX (/BI) AND TITLE (/TI) FIELDS >>>

=> d 141 iall 1-9

L41 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2006:681109 HCAPLUS Full-text
 ENTRY DATE: Entered STN: 14 Jul 2006
 TITLE: **Nonaqueous electrolyte**
 secondary **battery** and producing method
 thereof
 INVENTOR(S): Abe, Takeshi; Yamashita, Syuichi; Suzuki,
 Hiroyuki
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 US PATENT CLASSIF.: 429130000; 429094000; 429185000; 429175000;
 029623200
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. ----- | KIND ---- | DATE ----- | APPLICATION NO. ----- | DATE |
|------------------------|--------------|-----------------|--------------------------|-------------------|
| US 2006154137 | A1 | <u>20060713</u> | US 2006-328065 | 200601 10 |
| JP 2006196292 | A | 20060727 | JP 2005-6121 | 200501 13 |
| CN 1805203 | A | 20060719 | CN 2006-10004891 | 200601 12 |
| KR 2006082813 | A | 20060719 | KR 2006-3452 | 200601 12 |
| PRIORITY APPLN. INFO.: | | | JP 2005-6121 | A 200501 13 |

PATENT CLASSIFICATION CODES:

| PATENT NO. ----- | CLASS ----- | PATENT FAMILY CLASSIFICATION CODES ----- |
|---------------------|----------------|--|
| US 20060154137 | INCL | 429130000; 429094000; 429185000; 429175000; 029623200 |
| | IPCI | H01M0002-18 [I,A]; H01M0002-14 [I,C*]; H01M0002-04 [I,A]; H01M0002-08 [I,A]; H01M0010-04 [I,A] |
| | IPCR | H01M0002-14 [I,C]; H01M0002-18 [I,A]; H01M0002-04 [I,C]; H01M0002-04 [I,A]; H01M0002-08 [I,C]; H01M0002-08 [I,A]; H01M0010-04 [I,C]; H01M0010-04 [I,A] |
| | NCL | 429/130.000; 429/094.000; 429/185.000; 429/175.000; 029/623.200 |
| JP 2006196292 | IPCI | H01M0010-40 [I,A]; H01M0010-36 [I,C*]; H01M0002-02 [I,A]; H01M0010-04 [I,A] |
| | FTERM | 5H011/AA09; 5H011/CC06; 5H011/DD05; 5H011/DD15; 5H011/GG02; 5H011/HH02; 5H011/JJ02; 5H028/AA07; 5H028/CC12; 5H028/CC24; 5H028/EE06; 5H029/AK03; 5H029/AL07; 5H029/AM03; 5H029/AM05; 5H029/AM07; |

5H029/BJ02; 5H029/BJ14; 5H029/CJ01; 5H029/CJ04;
 5H029/CJ07; 5H029/DJ01; 5H029/DJ02; 5H029/DJ03;
 5H029/EJ04; 5H029/EJ12; 5H029/HJ12
 CN 1805203 IPCI H01M0010-04 [I,A]; H01M0010-40 [I,A]; H01M0010-38
 [I,A]; H01M0010-36 [I,C*]
 KR 2006082813 IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C*];
 H01M0002-18 [I,A]; H01M0002-14 [I,C*];
 H01M0002-34 [I,A]; H01M0002-20 [I,C*];
 H01M0002-04 [I,A]
 ECLA C08G077/26; H01L051/00M16

ABSTRACT:

The present invention provides for a **nonaqueous**
*****electrolyte***** secondary **battery** and a producing method
 therefor, in which a grooved portion provided in an upper portion of the
 outer casing of the **nonaqueous electrolyte** secondary
*****battery***** protrudes toward the inner portion of the outer casing, a
 group of electrodes being housed in the outer casing, a positive
 electrode and a negative electrode being wound in a spiral manner while
 facing each other through a separator in the group of **electrodes**
 , and a **sealing member** is placed on the upper portion
 of the grooved portion through insulated packing to seal the opening of
 the outer casing in an airtight manner, and whereby a circular insulating
 plate 10 provided with an arced opening 12 and cut portions 13 and 14
 is arranged between the upper portion of the group of electrodes and the
 lower surface of the grooved portion, the cut portions 13 and 14
 extending from end portions 12 a and 12 b of the opening 12, and the
 inner peripheral side of the cut portions 13 and 14 of the circular
 insulating plate is raised from the outer peripheral side of the cut
 portions 13 and 14. Such insulating plate does not adversely affect
 the injection property of the electrolytic solution used in producing the
*****nonaqueous***** **electrolyte** secondary **battery** as
 to provide it with excellent **battery** performance and excellent
 productivity.

L41 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:29034 HCAPLUS Full-text

DOCUMENT NUMBER: 134:74062

ENTRY DATE: Entered STN: 12 Jan 2001

TITLE: Flat **nonaqueous electrolyte**
batteries

INVENTOR(S): Hatanaka, Chizuru; Suzuki, Masami; Shikoda,
 Masataka; Tanaka, Kayo

PATENT ASSIGNEE(S): Toshiba Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: H01M006-16

CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal
 Energy Technology)

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|--------|
| ----- | --- | ----- | ----- | |
| JP 2001006692 | A | 20010112 | JP 1999-178060 | 199906 |

24

PRIORITY APPLN. INFO.:

JP 1999-178060

199906

24

PATENT CLASSIFICATION CODES:

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
|---------------|-------|---------------------------------------|
| JP 2001006692 | ICM | H01M006-16 |
| | IPCI | H01M0006-16 [ICM,7] |
| | IPCR | H01M0006-16 [I,A]; H01M0006-16 [I,C*] |

ABSTRACT:

The **batteries** have a metal cathode case also serving as cathode terminal, an anode case sealed to the cathode case via a **sealing member**, and **electrode-separator** stack and a **nonaq. electrolyte** solution enclosed in the **battery**; where the electrolyte solution contains a nonaq. solvent b. $\leq 130^\circ$, and the **battery** is kept in a $0-20^\circ$ between the injection of the electrolyte solution and the sealing of the **battery** cases during assembling. The **batteries** are secondary Li **batteries** using carbonaceous anodes and Li containing multiple oxide cathodes.

SUPPL. TERM: secondary lithium **battery** electrolyte
solvent low boiling; temp control secondary lithium
battery manuf

INDEX TERM: Secondary **batteries**
(lithium; temperature control in manufacture of secondary
lithium **batteries** using low b.p.
electrolyte solvents)

INDEX TERM: **Battery** electrolytes
(temperature control in manufacture of secondary lithium
batteries using low b.p. electrolyte
solvents)

INDEX TERM: 96-49-1, Ethylene carbonate 105-37-3, Ethyl
propionate 105-58-8, Diethyl carbonate 21324-40-3,
Lithium hexafluorophosphate
ROLE: DEV (Device component use); PEP (Physical,
engineering or chemical process); PROC (Process); USES
(Uses)
(temperature control in manufacture of secondary lithium
batteries using low b.p. electrolyte
solvents)

L41 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:885604 HCAPLUS Full-text

DOCUMENT NUMBER: 136:21968

ENTRY DATE: Entered STN: 07 Dec 2001

TITLE: An assembly of lithium **secondary
battery cells**INVENTOR(S): Enomoto, Akio; Kawamura, Kenji; Kitoh, Kenshin;
Yoshida, Toshihiro; Nemoto, Hiroshi; Otsubo,
Shinji

PATENT ASSIGNEE(S): Ngk Insulators, Ltd., Japan

SOURCE: Eur. Pat. Appl., 34 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

INT. PATENT CLASSIF.:

MAIN: H01M002-04

SECONDARY: H01M002-20; H01M002-30; H01M010-04
 CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal
 Energy Technology)
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|-------------|
| EP 1160893 | A2 | 20011205 | EP 2001-112568 | 20010523 |
| EP 1160893 | A3 | 20060816 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| JP 2002216716 | A | 20020802 | JP 2001-251492 | 20010330 |
| US 2001049054 | A1 | 20011206 | US 2001-863108 | 20010522 |
| US 6844110 | B2 | 20050118 | | |
| CA 2348230 | A1 | 20011124 | CA 2001-2348230 | 20010523 |
| JP 2002358945 | A | 20021213 | JP 2001-251496 | 20010822 |
| US 2005100785 | A1 | 20050512 | US 2004-10936 | 20041213 |
| PRIORITY APPLN. INFO.: | | | JP 2000-153702 | A 20000524 |
| | | | JP 2000-348784 | A 20001115 |
| | | | JP 2001-101872 | A 20010330 |
| | | | US 2001-863108 | A1 20010522 |

PATENT CLASSIFICATION CODES:

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
|------------|-------|---|
| EP 1160893 | ICM | H01M002-04 |
| | ICS | H01M002-20; H01M002-30; H01M010-04 |
| | IPCI | H01M0002-04 [I,A]; H01M0002-20 [I,A]; H01M0002-30 [I,A]; H01M0010-04 [I,A] |
| | IPCR | H01M0002-04 [I,A]; H01M0002-04 [I,C*]; H01M0002-20 [I,A]; H01M0002-20 [I,C*]; H01M0002-30 [I,A]; H01M0002-30 [I,C*]; H01M0010-04 [I,A]; H01M0010-04 [I,C*]; H01M0010-36 [N,C*]; H01M0010-40 [N,A] |
| | ECLA | H01M002/04; H01M002/20D2; H01M002/30; H01M010/04D |

JP 2002216716 IPCI H01M0002-04 [ICM,7]; H01M0002-06 [ICS,7];
H01M0002-08 [ICS,7]; H01M0002-20 [ICS,7];
H01M0002-30 [ICS,7]; H01M0010-40 [ICS,7];
H01M0010-36 [ICS,7,C*]

US 2001049054 IPCI H01M0010-02 [ICM,7]; H01M0002-12 [ICS,7];
H01M0002-22 [ICS,7]; H01M0010-36 [ICS,7]

IPCR H01M0002-04 [I,A]; H01M0002-04 [I,C*];
H01M0002-20 [I,A]; H01M0002-20 [I,C*];
H01M0002-30 [I,A]; H01M0002-30 [I,C*];
H01M0010-04 [I,A]; H01M0010-04 [I,C*];
H01M0010-36 [N,C*]; H01M0010-40 [N,A]

NCL 429/158.000; 429/053.000; 429/094.000;
429/174.000; 429/177.000; 429/181.000

ECLA H01M002/04; H01M002/20D2; H01M002/30; H01M010/04D

CA 2348230 IPCI H01M0010-24 [ICM,7]; H01M0010-28 [ICS,7]

IPCR H01M0002-04 [I,A]; H01M0002-04 [I,C*];
H01M0002-20 [I,A]; H01M0002-20 [I,C*];
H01M0002-30 [I,A]; H01M0002-30 [I,C*];
H01M0010-04 [I,A]; H01M0010-04 [I,C*];
H01M0010-36 [N,C*]; H01M0010-40 [N,A]

ECLA H01M002/04; H01M002/20D2; H01M002/30; H01M010/04D

JP 2002358945 IPCI H01M0002-20 [ICM,7]; H01M0002-20 [ICS,7];
H01M0002-12 [ICS,7]; H01M0002-30 [ICS,7];
H01M0010-40 [ICS,7]; H01M0010-36 [ICS,7,C*]

IPCR H01M0002-12 [I,C*]; H01M0002-12 [I,A];
H01M0002-20 [I,C*]; H01M0002-20 [I,A];
H01M0002-30 [I,C*]; H01M0002-30 [I,A];
H01M0010-36 [I,C*]; H01M0010-40 [I,A]

US 2005100785 IPCI H01M0002-08 [ICM,7]; H01M0002-02 [ICS,7]

IPCR H01M0002-04 [I,A]; H01M0002-04 [I,C*];
H01M0002-20 [I,A]; H01M0002-20 [I,C*];
H01M0002-30 [I,A]; H01M0002-30 [I,C*];
H01M0010-04 [I,A]; H01M0010-04 [I,C*];
H01M0010-36 [N,C*]; H01M0010-40 [N,A]

NCL 429/174.000; 429/094.000; 429/181.000

ECLA H01M002/04; H01M002/20D2; H01M002/30; H01M010/04D

ABSTRACT:

A lithium **secondary cell** is disclosed which is excellent in productivity since a cell structure is simple and easy for assembly. Provided is a lithium **secondary cell** having: an internal electrode body including a pos. electrode plate, a neg. electrode plate, the pos. electrode plate and the neg. electrode plate being wound and laminated around an external periphery wall of a hollow cylindrical winding core, and inside the internal electrode body a ***nonaq.*** **electrolyte** solution being impregnated, a cylindrical cell case contained in this internal electrode body with both ends being opened, and two **electrode caps** **sealing** the above described internal electrode body at both the open ends of this cell case. The electrode cap has a plate **member** ***sealing*** the internal **electrode** body and disposed so as to seal both the open ends of the above described cell case, an external terminal member protruding onto the surface of the electrode caps to lead out currents to outside, and an internal terminal member brought into connection with the internal electrode body and taking out currents from the internal electrode body, and an elastic body and at least two of the above described plate member, the external terminal member and the internal terminal member are joined together for construction. Furthermore, there is also provided an assembly of lithium ***secondary*** **cells**.

SUPPL. TERM: lithium **secondary battery**
cell assembly

INDEX TERM: Electric vehicles
 Welding
 (assembly of lithium **secondary battery cells**)

INDEX TERM: Ethylene-propylene rubber
 Fluoropolymers, uses
 ROLE: TEM (Technical or engineered material use); USES
 (Uses)
 (assembly of lithium **secondary battery cells**)

INDEX TERM: Secondary **batteries**
 (lithium; assembly of lithium **secondary battery cells**)

INDEX TERM: Aluminum alloy, base
 Copper alloy, base
 Nickel alloy, base
 ROLE: DEV (Device component use); USES (Uses)
 (assembly of lithium **secondary battery cells**)

INDEX TERM: 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses
 7440-50-8, Copper, uses 12597-68-1, Stainless steel,
 uses 12597-71-6, Brass, uses
 ROLE: DEV (Device component use); USES (Uses)
 (assembly of lithium **secondary battery cells**)

INDEX TERM: 9002-88-4, Polyethylene 9003-07-0, Polypropylene
 ROLE: TEM (Technical or engineered material use); USES
 (Uses)
 (assembly of lithium **secondary battery cells**)

INDEX TERM: 9010-79-1
 ROLE: TEM (Technical or engineered material use); USES
 (Uses)
 (ethylene-propylene rubber, assembly of lithium **secondary battery cells**)

L41 ANSWER 4 OF 9 JAPIO (C) 2007 JPO on STN

ACCESSION NUMBER: 1998-247512 JAPIO Full-text

TITLE: SEALED NONAQUEOUS ELECTROLYTE
BATTERY

INVENTOR: TERASAKI MASANAO

PATENT ASSIGNEE(S): JAPAN STORAGE BATTERY CO LTD

PATENT INFORMATION:

| PATENT NO | KIND | DATE | ERA | MAIN IPC |
|-------------|------|----------|--------|------------|
| JP 10247512 | A | 19980914 | Heisei | H01M010-02 |

APPLICATION INFORMATION

STN FORMAT: JP 1997-65324 19970304

ORIGINAL: JP09065324 Heisei

PRIORITY APPLN. INFO.: JP 1997-65324 19970304

SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined
 Applications, Vol. 1998

INT. PATENT CLASSIF.:
 MAIN: H01M010-02
 SECONDARY: H01M006-16; H01M010-40

ABSTRACT:

PROBLEM TO BE SOLVED: To prevent damage of a pressure equalizer, and prevent this from becoming a hindrance at manufacturing and maintenance time by communicating the sealed pressure equalizer, in which positive electrode and negative electrode terminals are insulated and sealed from an upper surface and which is installed on a peripheral surface except for an upper surface of an outward projecting cell jar and on which the volume can be extended and contracted according to external pressure, with the inside of the cell jar through a filter layer.

SOLUTION: Since a positive electrode terminal 3 and a negative **electrode** terminal 4 **sealed** by an insulating **member** 8, project from an upper surface of a cell jar 2 having a power generation element 6 and **nonaqueous electrolyte** 7 inside, they do not become inconvenient for maintenance work or the like. For example, an upper end opening part of a pressure equalizer 5 whose peripheral side surface is a bellows shape of a stainless steel thin plate or the like, is sealed in and fixed to a bottom surface of the cell jar 2, and a filter 9 such as a porous stainless steel sintered body is arranged on the bottom surface, and the **nonaqueous electrolyte** is also filled in the pressure equalizer 5. Therefore, since electrode chips and active material particles do not pass through it, the pressure equalizer 5 is not damaged, and the internal volume changes by extension-contraction of bellows, and pressure in the cell jar 2 is equalized to the outside in the depths of the sea or the like. COPYRIGHT: (C)1998,JPO

L41 ANSWER 5 OF 9 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 1969:55985 INSPEC

DOCUMENT NUMBER: B1969-018843

TITLE: **Electrolytic cell** with housing comprising **electrode** and **seal** portions

AUTHOR: Mintz, M.

PATENT ASSIGNEE: Bissett-Berman Corp., Santa Monica, Ca., USA

PATENT INF., ORIGINAL: US 3423644 19690121

APPLICATION INFORMATION: 19670112

PRIORITY INF., ORIGINAL: US-608856

DOCUMENT TYPE: Patent

COUNTRY: United States

LANGUAGE: English

ABSTRACT: Generally the invention relates to **electrolytic cells** including an outer housing serving as a first outer electrode, and with the outer housing having an open and a closed end and with an insulating member extending across the open end of the outer housing, and with at least one inner electrode extending through the insulating **member** and **sealed** to the insulating **member** prior to the **sealing** of the insulating **member** across the open end of the outer housing CLASSIFICATION CODE: A8630E Primary cells; B8410C Primary cells

CONTROLLED TERM: electrolysis; **primary cells**

L41 ANSWER 6 OF 9 JAPIO (C) 2007 JPO on STN

ACCESSION NUMBER: 2005-149763 JAPIO Full-text

TITLE: RECTANGULAR **NONAQUEOUS ELECTROLYTE SECONDARY BATTERY**

INVENTOR: HOSOBUCHI KAORU

PATENT ASSIGNEE(S): TOSHIBA CORP

PATENT INFORMATION:

| PATENT NO | KIND | DATE | ERA | MAIN IPC |
|---------------|------|----------|--------|------------|
| JP 2005149763 | A | 20050609 | Heisei | H01M010-40 |

APPLICATION INFORMATION

STN FORMAT: JP 2003-381646 20031111

ORIGINAL: JP2003381646 Heisei
 PRIORITY APPLN. INFO.: JP 2003-381646 20031111
 SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined
 Applications, Vol. 2005
 INT. PATENT CLASSIF.:
 MAIN: H01M010-40
 SECONDARY: H01M002-02
 ABSTRACT:

PROBLEM TO BE SOLVED: To provide a rectangular **nonaqueous electrolyte secondary battery** restraining a bulge of an armoring can due to a charge-discharge cycle.
 SOLUTION: This rectangular **nonaqueous electrolyte secondary battery** is equipped with the armoring can 1, an electrode group 3 housed in the armoring can 1 and including a positive electrode 6 and a negative **electrode** 4, and a **sealing member** mounted to an opening of the armoring can 1, and is characterized in that the maximum thickness of the armoring can 1 at a discharge termination voltage 3V is not greater than 105% of the thickness of the bottom surface or an opening end of the armoring can 1.

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L41 ANSWER 7 OF 9 JAPIO (C) 2007 JPO on STN
 ACCESSION NUMBER: 2003-257494 JAPIO Full-text
 TITLE: **NON-AQUEOUS
 ELECTROLYTE SECONDARY BATTERY**
 INVENTOR: KANDA MOTOI; SATO YUJI; YAMADA SHUJI; ISOZAKI
 YOSHIYUKI; KISHI TAKASHI
 PATENT ASSIGNEE(S): TOSHIBA CORP
 PATENT INFORMATION:

| PATENT NO | KIND | DATE | ERA | MAIN IPC |
|---------------|------|----------|--------|------------|
| JP 2003257494 | A | 20030912 | Heisei | H01M010-40 |

APPLICATION INFORMATION

STN FORMAT: JP 2002-54914 20020228
 ORIGINAL: JP2002054914 Heisei
 PRIORITY APPLN. INFO.: JP 2002-54914 20020228
 SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined
 Applications, Vol. 2003
 INT. PATENT CLASSIF.:
 MAIN: H01M010-40
 ABSTRACT:

PROBLEM TO BE SOLVED: To provide a **non-aqueous electrolyte secondary battery** having reduced burst and firing during burner test.
 SOLUTION: The **non-aqueous electrolyte secondary battery** comprises a bottomed cylindrical metal case, an electrode group including a positive electrode and a negative electrode, stored in the case, a vertically elongated spacer 18 arranged between the inner wall of the case and the electrode group to form a gas passage between the inner wall of the case and the **electrode** group, a **sealing member** arranged in an opening portion of the case, and a gas releasing mechanism arranged on the bottom of the case or on the **sealing member**.
 COPYRIGHT: (C)2003,JPO

L41 ANSWER 8 OF 9 JAPIO (C) 2007 JPO on STN
 ACCESSION NUMBER: 2002-216716 JAPIO Full-text
 TITLE: **LITHIUM SECONDARY CELL AND
 CONNECTION STRUCTURE OF LITHIUM
 SECONDARY CELL**
 INVENTOR: ENOMOTO AKIO; KAWAMURA KENJI; OTSUBO SHINJI;

PATENT ASSIGNEE(S): KITO MASANOBU; NEMOTO HIROSHI; YOSHIDA TOSHIHIRO
PATENT INFORMATION: NGK INSULATORS LTD

| PATENT NO | KIND | DATE | ERA | MAIN IPC |
|---------------|------|----------|--------|------------|
| JP 2002216716 | A | 20020802 | Heisei | H01M002-04 |

APPLICATION INFORMATION

STN FORMAT: JP 2001-251492 20010330
ORIGINAL: JP2001251492 Heisei
PRIORITY APPLN. INFO.: JP 2000-153702 20000524
PRIORITY APPLN. INFO.: JP 2000-348784 20001115
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined
Applications, Vol. 2002
INT. PATENT CLASSIF.:
MAIN: H01M002-04
SECONDARY: H01M002-06; H01M002-08; H01M002-20; H01M002-30;
H01M010-40

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a lithium **secondary cell** realizing enhancement of productivity by making an electrode lid excellent in assembling and function.
SOLUTION: The lithium **secondary cell** 14 is provided with an internal electrode body 1 constituted by winding and **laminating** a positive **electrode** plate and a negative electrode plate on an outer periphery wall of a hollow cylindrical core 13 and impregnated therein with a **non- aqueous electrolytic** solution; a cylindrical **battery** case 24 which stores the internal electrode body 1 at the inside and of which both ends are opened; and two sheets of **electrode** caps which **seal** the internal **electrode** body 1 at both opened ends of the **battery** case 24. The electrode caps are provided with a plate-like **member sealing** the internal **electrode** body 1 and arranged so as to seal both opened ends of the **battery** case 24; an external terminal member introducing a current to the outside and projected on a surface of the electrode caps; and an internal terminal member taking out the current from the internal electrode body 1 and connected to the internal electrode body 1. At least two members of the plate-like member, the external terminal member and the internal terminal member are joined.
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L41 ANSWER 9 OF 9 JAPIO (C) 2007 JPO on STN
ACCESSION NUMBER: 2000-048829 JAPIO Full-text
TITLE: **BATTERY** AND MANUFACTURE THEREOF
INVENTOR: SANO AKIHIRO; OO FUMIO
PATENT ASSIGNEE(S): MATSUSHITA ELECTRIC IND CO LTD
PATENT INFORMATION:

| PATENT NO | KIND | DATE | ERA | MAIN IPC |
|---------------|------|----------|--------|------------|
| JP 2000048829 | A | 20000218 | Heisei | H01M006-16 |

APPLICATION INFORMATION

STN FORMAT: JP 1998-217248 19980731
ORIGINAL: JP10217248 Heisei
PRIORITY APPLN. INFO.: JP 1998-217248 19980731
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined
Applications, Vol. 2000
INT. PATENT CLASSIF.:
MAIN: H01M006-16
ABSTRACT:

PROBLEM TO BE SOLVED: To stabilize **battery** characteristics of a **nonaqueous electrolyte battery**, whose negative electrode active material is a light metal such as lithium by performing a pre-discharge process without contacting a **battery** with an external terminal. SOLUTION: After a power generation element is accommodated in a **battery** canister, in the preceding process for sealing that a gasket 3 and a **sealing member** are disposed at the opening of the **battery** canister, or in the following process after **sealing**, a corona discharge **electrode** 4 is disposed where a positive electrode terminal 2 and a negative electrode terminal 1 are adjacent. By the corona discharge, the positive electrode terminal 2 and the negative electrode terminal 1 are made to be conducted electrically, and pre-discharge is performed.

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